Hello, this is me.

Technical Considerations for .IDN

June 3, 2007
APTL Meeting

Hiro Hotta
Japan Registry Services, Co., Ltd. (JPRS)
http://jprs.jp/
http://日本レジストリサービス.jp/

Technical Issues in General

NAMEPREP and ACE

- NAMEPREP (Preparation of Internationalized Host Names)
  - Non-ASCII IDN string representations which should be regarded as the same string are converted into one representation
    - Case folding
    - Normalization
    - Prohibition
  - ACE (ASCII Compatible Encoding)
    - Non-ASCII IDN string is converted into an appropriate ASCII domain name
    - Punycode

Where IDNs are recognized

Basic mechanisms of IDN representation

NAMEPREP

unification of the strings considered to be the same

Punycode

conversion to an ASCII string

Internet (based on ASCII)

ASCII string

XN--ABC-MJ1B9F9A7RSC.JP

For ASCII domain names
ASCII domain names

For IDNs
Non-ASCII representation
ASCII domain name

Internet
DNS

user
client
application
PC
server
application

original string

ABCカンパニー.JP
A B Cカンパニー.JP
A B Cカンパニー.JP

normalized string

ABCカンパニー.JP

Punycode

<Q3>

Copyright © 2007 Japan Registry Services, Co., Ltd.
**IDN TLD space in early days**

**Alternate root**

- Internationalized domain space
- TLDs not authorized by ICANN
- Authoritative root

- Hierarchy overseen by ICANN

**Inclusive root (variation of alternate root)**

- Inject unauthorized IDN TLDs into the apparent name server
- Unauthorized TLDs can be seen together with ICANN’s

**Pseudo-root (zero level domain)**

- Append “.jp” to “銀行.企業”
- multilingual domain name space

**Now it's coming:**

IDNs in a single authoritative root

- .com .jp .ae...
- All are authorized to be added to the root

**Technical Options for Internationalized TLDs**
IDN TLD

• Technical Issues
  – Into the root zone
    • NS records
    • DNAME records
      – Equivalent space to existing ASCII TLD space

• Policy issues
  – How to decide TLD Strings?
  – Who will run the TLD registries?
  – Mapping between ASCII TLD and IDN TLD?

NS Records and DNAME Records

• Technical tests of two approaches
  – NS records
    • allow the creation of a new TLD space that can be proposed by any entity regardless of whether it is currently operating a top-level domain or not
  – DNAME records
    • imply a situation where the operator of an existing ASCII TLD would map it into a non-ASCII TLD which is equivalent to the ASCII version, either synonymous to or a transliteration of the original TLD